

ROMANIAN NEWS

ELEVENTH YEAR
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Now, at the beginning of a new year, we are calling on all the states and peoples of the world to do their best for the new year to mark important steps on the road to disarmament, peace, solving conflicts through negotiations, achieving new, democratic relations based on the principles of fully equal rights, observance of the sovereignty and independence of each nation, noninterference in internal affairs, complete renunciation of the use and threat of force

From President Nicolae Ceaușescu's New Year Message Broadcast by Romanian Radio and Television

AT THE BEGINNING OF A NEW YEAR

The beginning of a new year is, by tradition, a time for a balance sheet of the achievements of the year that has passed, for sketching the provisions for the future. For the Romanian people, the year at the turn of the century has offered ground-reasons for optimism.

His New Year Message, President Nicolae Ceaușescu underlined that in 1987 the Romanian people led by the communist party had had outstanding achievements in socioeconomic development and despite difficult international conditions, had traversed a new stage on the path of raising our homeland to new heights of progress and civilization. A substantial growth was achieved with industrial and farm output, in all spheres of activity. We also realized important investments. New production units and sociocultural establishments were completed. Remarkable achievements

were scored in science, education and cultural activities — major factors in the many-sided progress of our homeland. The Romanian people's great achievements in the years of socialist construction, therefore, in the first two years of the eighth five-year plan period, too, strongly prove the correctness of the policy promoted by our communist party which credibly fulfills its role of leading force of the whole nation on the road of building the justest society, that of socialism and communism.

For these remarkable achievements, President Nicolae Ceaușescu extended his warm congratulations to the working class, the peasantry, the intelligentsia, to the whole people, further on showing that we enter the new year, 1988, with clear-cut plans and programmes for our work then and over the five-

year plan period, just as in the long run, till the year 2000.

The National Conference of the Party, the revolutionary worker democracy bodies and the Grand National Assembly approved the plans and programmes of work for 1988, set appropriate measures for the elimination of this year's shortfalls, the improvement of activity in all areas and the unflinching implementation of the targets for our homeland's socioeconomic development starting on the first day of the new year.

Now it is decisive to firmly pass on to well-organizing work in all sectors, improving management and work with a high sense of revolutionary responsibility, strengthening order and discipline and do so as each one at his workplace

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ELENA CEAUȘESCU ANNIVERSARY

Elena Ceaușescu, member of the Executive Political Committee of the CC of the RCP, First Deputy Prime Minister, Chairwoman of the National Council of Science and Education, was feted on her birthday and long activity in the communist and working-class movement during a ceremony held in Sinaia resort on Thursday, January 7.

The ceremony was attended by the General Secretary of the Romanian Communist Party Nicolae Ceaușescu, full and alternate members of the Executive Political Committee of the CC of the RCP, secretaries of the Party's Central Committee, members of the State Council and of the Government.

In that festive atmosphere, Elena Ceaușescu was handed the letter of the Executive Political Committee of the Central Committee of the Romanian Communist Party by Constantin Dăscălescu, member of the Executive Political Committee of the CC of the RCP, Prime Minister.

LETTER OF THE CC OF THE RCP EXECUTIVE POLITICAL COMMITTEE

The letter of the Executive Political Committee of the CC of the RCP addressed to Academician Elena Ceaușescu, P.S., on her birthday is highly appreciative of her long activity in the communist and working-class movement, of her contribution to the fight for the revolutionary transformation of the country, and the building of the new destiny of socialist Romania.

Our whole party and people give a high and unanimous appreciation to your activity and outstanding role in your activity and important contribution to your country's development — as a member of the Executive Political Committee of the Central Committee of the Romanian Communist Party, First

Deputy Prime Minister and Chairwoman of the National Council of Science and Education — to the substantial and carrying out effect of the grandiose plans for the organization and modernization of production, for a higher productivity and scientific efficiency, to the attainment of the targets of the new revolution in science and technology and of the new socialist revolution in the implementation of the Party's Programme, the letter of the Executive Political Committee further reads.

The letter also highlights the activity carried on by Academician Elena Ceaușescu, P.S., in scientific and technological fields

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SCIENCE — A DECISIVE FACTOR IN IMPLEMENTING DEVELOPMENT PROGRAMMES

RESEARCH
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THE SINGLE NATIONAL PLAN OF ROMANIA'S SOCIOECONOMIC DEVELOPMENT IN 1988

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new reality imposed by modern industry which on the one hand recommends the traditional line, in keeping with which research must be directed at solving problems raised by industry, as well as the modern line, according to which industry is called upon to provide optimum conditions for the study and utilization of the gains of research. The slight differences between the two lines plead for that extremely fertile outlook in which science imposes its own technological rates and the structures in a permanent confrontation with the requirements of a vast development strategy.

This year Romanian scientific research is faced with highly important and urgent tasks. Research is to make a larger contribution to expanding material and energy resources; to the recovery factor in the exploitation of crude deposits is to reach 30 per cent, through the application of modern exploitation technologies; the recovery degree of metal should surpass 90 per cent; the heavy-duty equipment and mining engineering industries should increase their production to a proportion of 60 per cent, the electrical engineering and electronics one by 67 per cent, while the metal one by 50 per cent, and the chemical one by 33 per cent. At the same time, advanced research should provide for the development of the latest applications of physical chemistry, chemistry, electronics, and other disciplines, dispersing researches in fluid space as rapid, numerous, and technologically sophisticated, superconductor materials, etc.

There are only a few of the guidelines to be followed by scientific research for fulfilling the tasks and objectives of the upcoming year and of the entire five-year plan period.

As for the situation in Romania, you have been telling here, you have been expressing your concerns, what is good and what is wrong. As a matter of fact, in the last few weeks there has been a great length of these statements in our democratic bodies, starting with the National Conference of the Party, all the way ending with the Great National Assembly.

We know that you and each of us have achieved a great responsibility. To general development and to the development of the country, to the development of different regions. That is why, in agreement with our general public, we will do all that we can to help you in your efforts to improve the situation of the country, to help you to help yourselves, to help others, to help humanity, in nations, and in better and a better world.

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ADVANCED RESEARCHES

Romania has a national centre of physics as part of which researches are made in the field of using atomic energy for peaceful purposes. By means of cyclotrons, of apparatus giving particles high energy and other equipment, specialists study the mechanisms of nucleus interaction and structure, the process of nuclear fission. To this end they use X-ray and gamma radiation detectors, detectors of charged particles, including heavy ions, ionization chambers, mass and charge identification systems, etc. Experimental data are introduced in computers on the basis of a complex software. From among the successes of the Romanian physicists noteworthy are the results secured in the study of the structure of nuclei. At the same time remarkable results have been obtained in the research of reaction mechanisms. Outstanding results are scored by the approach of other high-tech researches in the field of atomic processes, of the physics of heavy ions. At the same time developed were applied researches through the creation of nuclear filters for microelectronics, the pharmaceutical and food industries.

Original methods have been worked out for determining the

content of hydrogen on the surface of metals, semiconductors or certain insulating materials, as well for identifying impurities in semiconductors. Various installations using the properties of gas and plasma discharges, various accelerators and betatrons for non-destructive control, medical therapy, etc. have been designed. Also devised were installations and technologies for the vacuum technique — electron beam welding, metallo deposits, special alloys obtaining. The Romanian researchers have created nuclear electronics apparatus and dosimeters for nuclear electric stations. Together with German

HILL RECOVERY

The Romanian vine culture research has made possible the scientific classification of cereals and the distribution of breeds according to the pedoclimatic peculiarities of each vineyard. During the last years, 18 new breeds and over 20 clones of vine have been created, being more resistant to cold, drought, diseases and pests. Wine growing technologies have been modernized, directing the vines on stems has been introduced, and

experts from the Max Planck-Helidelberg Institute, Romanian physicists have created an up-to-date postacceleration system for obtaining powerful energy. Fruitful scientific collaboration has also been conducted with institutions in the USSR, China, Yugoslavia, Czechoslovakia, East Germany, West Germany, France, the USA, Italy, and other countries. Romania boasts one of the few institutes of nuclear physics in the world; it also exports radioactive and stable isotopes, and develops isotopic technologies with broad applications in the economy, biology, medicine.

LUDOVIC ROMAN ■

differentiated cutting systems have been established. Special attention was paid to setting up new plantations, especially on steep grounds, inadequate to other crops. The Perieni research station has specialized in elaborating and testing new technologies in hill areas on difficult grounds, with high gradients of sloping and various degrees of deterioration. The results of the research carried on here have been applied on the scale of an entire wine growing area in Vaslui county. The Hugi experiment, as experts call it, has proved the possibility of getting rich grape crops in an area which seemed to be hard to manage in keeping with the requirements of modern viticultural technology. Today's vineyards, stretch on 2,000 ha. "Hugi" is related to the most famous wine growing centres of the country. The success at Hugi has stimulated the activity of wine growers in other counties including slopy, decayed grounds. Loc. Suceavut vineyards have been set up at Mosna and Rădăuani (Iasi county), in the pre-mountainous areas (Sibiu, Cluj, Alba counties) etc. The research has revealed a very important point in agricultural practice, namely, that in numerous areas that have recently entered the "area" of this culture, vine can grow even unprotected or semi-protected.

FLEXIBLE CELL SYSTEMS

Last year, a flexible cell workshop was commissioned at the Semănătoarea Enterprises. It is the fruit of collaborating of the specialists of the unit with those of the Flex Institute, Research and Technological Engineering for Machine Tools, who worked out the project and part of the systems of automated supply for flexible cells. The new achievement is part of an ample action carried out in large investment programme, which has practically changed the face of the plant by modernizing the technological procedures and flows at the main works, starting with the "hot" sectors up to the processing sectors and the assembly works.

The first plant was completed last year and now work is being done for a new technological stage. The flexible cells and the robot have started work in the first place, we can mention an aspect relating to robot feeding the execution systems.

AUTOMATION

The automation of production processes, the computer-assisted design, the programming of economic activities are constant concerns with Romanian researchers who have worked out numerous studies, syntheses and monographs brought out in the well-known series of the Bucharest Technical Publishing House The Library of Automates, Informatics, Electronics and Management. Of the latest releases we should mention *Identificarea sistematice de calculatoare* (Computer-Assisted Identification of Systems) by Mihai Tertico, Petre Stoica and Theodor Popescu, a study laying stress on algorithms and the implementation on computers of questions related to industry, environment protection and other fields. The authors set forth original methods of identifying solutions, of analytically and experimentally modelling the processes under study. Another volume, *Desfășurarea suprafețelor asistată de calculator* (Computer-Assisted Unfolding of Surfaces) signed by Ioan Marinescu, Aurelian Tănăsescu and Radu Constantinescu brings up interesting applications of the Romanian-made independent and Coral minicomputers, and of the DAF 2020 display. The work presents automation programmes for technical drawing and design activities in machine and metal engineering enterprises. Recently printed was also the study "Finite and Border Elements with Applications in Machine Body Computing". The authors, M. Gălbeneanu, V.E. Popescu and N. Mihalache, note in the preface that the work is based on Romania's and other countries' experience in the realm of expanding sophisticated computing methods, especially that of elements and border finite.



THE ROMANIAN LASER

Laser physics is one of the most fabulous domains of modern physics. Sprung out of the crossroads of numerous trends and directions, laser technology has preserved and enlarged its interdisciplinary character lately. It is successfully applied in material processing printing, medicine, telecommunications, optical processing of data, metrology, etc. Noteworthy is the fact that making an analogy between the first 25 years development of laser and the development of computers over the same period of time, statistics show that lasers have outrun computers as regards their selling in the world market.

AMONG THE BEST IN THE WORLD

Not long ago it was 25 years since the making of the first Romanian laser. I suggested to Dr. Vasile Dragănescu, head of the laser section at the Central Physical Institute (ICEPIZ) to tell us about Romanian lasers' evolution alongside the world development of the scientific and technological domain.

"There had hardly passed two years since the inauguration of the laser 'era', by the appearance, in 1960, of the ruby laser

country produces carbon dioxide lasers on a par with world trends, adapted for industrial use. Now, as well as in the near future, most demanded is the continuous wave carbon dioxide laser of 12 kW. Another system produced by us, equipped with computer-digital control, cuts materials with complex contours.

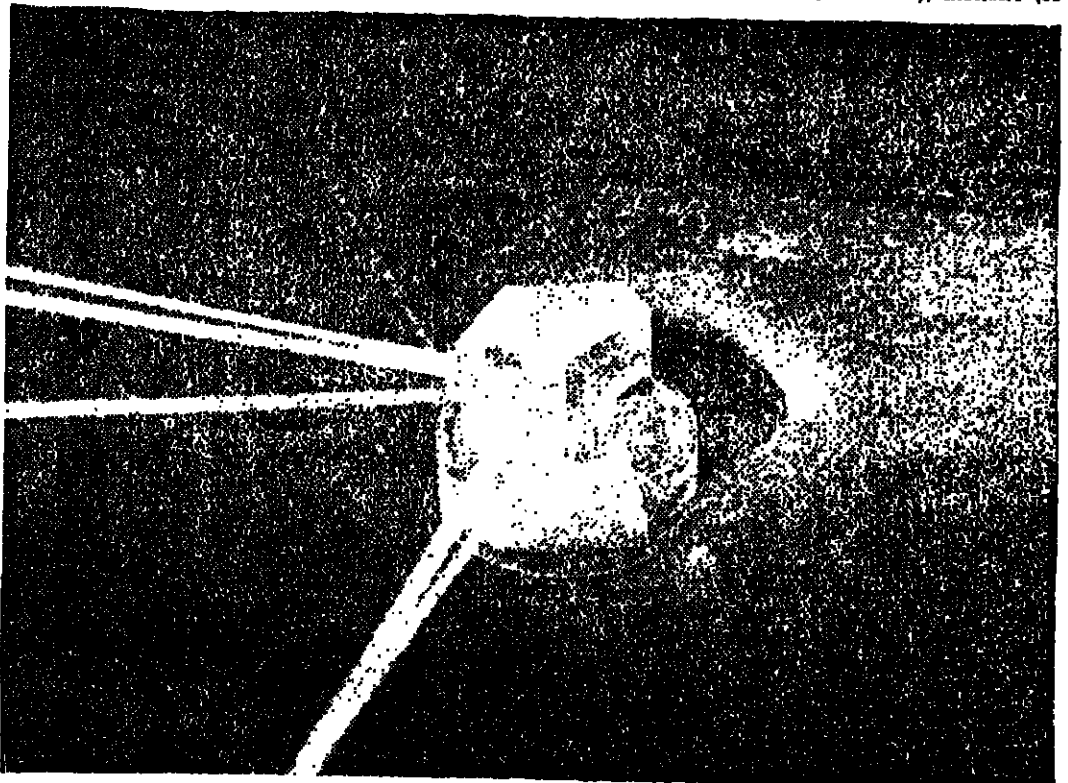
ONE STEP AHEAD OF WORLD EXIGENCIES

"The Romanian installation for the laser nitriding of steel and titanium, a new, highly ef-

fectness. They can be used for precision boring, microboring, thermal treatments and inscriptions.

"Also, the He-Ne laser interferometers built in Romania in various variants have parameters competitive on any market in the world.

"Laser measure and control installations currently equip the Romanian industry and agriculture thanks to their great accuracy, especially in contactless measurements. The laser measure and control apparatus also include optical-electric devices and microcomputers. They are used on a large scale in alignment, levelling, distance measurements (to km with an accuracy of 1 cm), motions (60



THE LASER IN A NUTSHELL

When an atom moves from a higher energy level to a lower one, it emits spontaneously a quantity of light in a quantum of radiant energy called photon, carrier of the energy difference between the two levels. Unlike the spontaneous emission of light, the stimulated emission takes place when the atom is determined to fall from the higher level to the lower one following a collision with a photon. A continuous process of this kind produces an avalanche of identical photons. That is why a "pumping" mechanism is needed to keep the phenomenon going. Generally, this mechanism consists of two facing mirrors reflecting the photons and forcing them to cross several times the active material of the laser, causing a new avalanche of photons. One of the mirrors is slightly transparent, allowing the amplified radiation to issue under the form of a narrow, very intense beam. The main characteristics of laser light are: monochromaticity, unidirectionality, coherence and intensity. Of the criteria used for classifying lasers we should mention two: the emission regime (pulsed or continuous-wave) and the type of active material.

and, in 1961, of the He-Ne laser, when the collective of young researchers, led by Ion Agărbiceanu, then head of the optics methods in nuclear physics laboratory at the Atomic Physics Institute, made the first Romanian laser.

"I don't know exactly what place Romania held as an owner of lasers, but I was one of the first. We owe this to the plan and enthusiasm of our researchers, as well as to the experimental techniques and theoretical knowledge they used.

"The switch of the activity of our laboratory to this new domain allowed, in a few years, the main types of lasers which had already appeared in the world, to be made here, while we tried to diversify, optimize and apply them to research and, especially, in the economy.

"At present, the laser activity in our country is carried on within the Programme of scientific research and technological development Lasers and Their Applications: Their Expansion in the Sectors of National Economy over 1988-1990. The strategy of this programme is meant to correlate the development of lasers in the whole world to the requirements of the national economy. As a matter of fact, a great number of activities are impossible to approach — according to the modern criteria of efficiency and quality — without making use of the means offered by the complex laser installations. A few examples: over 1981-1987 the heat treatment of materials has held the first place among world laser applications. The most widely used systems are carbon dioxide lasers in continuous wave, with powers of several kilowatts. At present, our

most efficient technology for the hardening of metallic materials and the achievement of materials for the electronic industry is a world first, while the glass laser and the neodymium-doped, pulsed and continuous-wave YAG installations are on a par with the best world performance.

"Technological research and development of the laser mea-



sure and control apparatus first of all answer the requirements of the national economy: drilling and coal mines, control of irrigation and draining ditches, industrial alignments, accurate measurements for fine mechanics and machine

tools, semiconductor plaques and optic fibres control, nondestructive control of parts, etc. At the international level, numerous systems can be coupled to microcomputers, allowing of automation and the use of the whole to measuring potential with the help of laser light. The use of laser sensors and of artificial light systems with structured light in the intelligent robots of the automated manufacturing flows is a certificate of the next decade's production.

"In the realm of chemistry we are concerned with obtaining laser sintering powder. We have already obtained substances with special properties through laser irradiation, and devised beam irradiation, air-borne and installations, some of them world firsts. Jointly with experts from the Dugău chemical enterprises, researches are conducted for preparing new substances and devising the requisite technological processes. Some of our researches concerning substances separation and isotopic enrichments: for example, from, using the fruit of collaboration with Soviet researchers from the Institute of Physics, Institute of Research headed by Alexander Mal'tsev, for the discovery of the laser. These researches have a wide range of future made by its standing out among which the high competitive performance are the carbon dioxide and neodymium-doped neodymium lasers.

LOOKING INTO THE 2000S

As part of the recent nationwide meeting dealing with laser — Dr. Mihail Tacheian Pascan, director of the Institute of Physics and Technology of Radiation Equipment (ITARE) told the specialists of the Institute and those working in industry, agriculture and medicine outlined ways and means of implementing more rapidly these technologies in economy and research. Anchored in particular was the question of expanding the industrial production of laser equipment in the context of upgrading enterprise and introducing in the production line of complex products involving a large volume of intelligence. In this respect a better collaboration has been achieved between the specialists of the Institute and those in economy. Moreover, multidisciplinary teams have been set up in order to solve important technological questions. I

think that we have favourable premises for such joint actions. Of late, our activity has been focused on diversifying types of lasers: He-Ne, CO, ionized argon, nitrogen, dye-stuffs, solid body, semiconductor, etc. In parallel, a significant increment has been recorded in the functional parameters of the existing lasers. Hence, my confidence in the possibility of expanding the number of laser applications. We have designed new types of lasers boasting superior qualities, which are used for the processing of materials, the control of environmental pollution, for various activities in medicine and biology, research into plasmas, preparation of images, interferometry and industrial holography. The systems of aligning lasers with helium and neon produced by us are currently used in construction and agriculture. The laser equipment with carbon dioxide for



A RAY OF HOPE

Since its advent, laser has stood out through the accuracy of its handling and the efficiency of the process of laser-tissue interaction radiation. This has aroused a keen interest in the implementation of laser in the medical therapy and surgery equipment. Developed for and adapted to these purposes were lasers with emission from ultraviolet to infrared, with continuous emission or in short impulses and greater power on the pulse. In parallel with the development of laser equipment a series of clinical researches have been made into their application to various medical fields: ophthalmology, gastroenterology, neurosurgery, otolaryngology, urology, gynaecology, dermatology, etc. Thanks to the development of optical fibers and of optomechanical devices, laser has been adapted to operations of

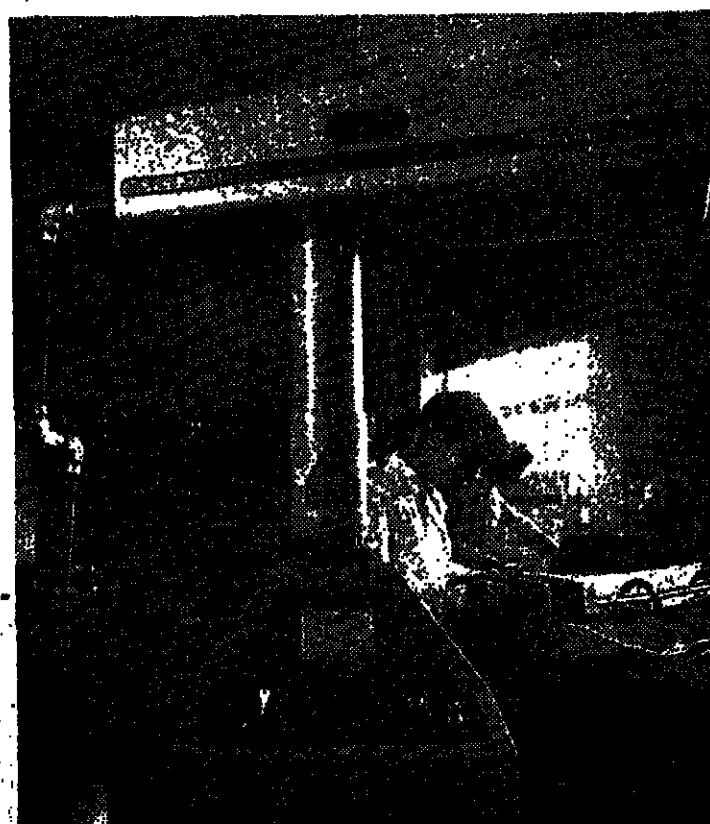
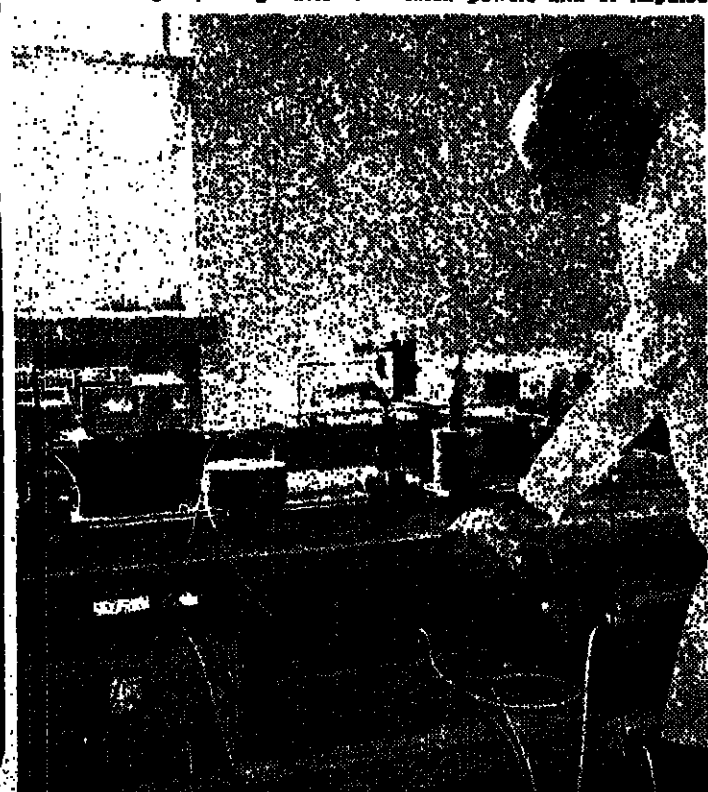
cutting live tissue, tissue evaporation (especially tumoral areas), tissue ablation (blood vessels) ocular correction, treatment of hemorrhage, cardiology, revascularization, etc. Thanks to the use of medical laser equipment, many medical technologies can be executed performed on outpatients either with or without anesthesia. Essential is also to shorten the duration of post-operative recovery of patients after surgery. As concerns the realization of Romanian medical laser equipment outstanding are two types of CO₂ laser sculpt: BILAS 10 for microsurgery and BILAS-30 for general surgery. At the same time we have three types of photoconduits used in ophthalmology, as well as a bioluminescent laser with helium-neon used in the treatment of rheumatological affections and in neopuncture.

ROMANIAN LASER TECHNOLOGY

A laser technology developed by Romanian specialists is becoming increasingly more widespread in industry: the laser irradiation for superficial hardening of metallic parts. The method, which consumes 30-40 per cent less energy than the established methods of this kind, ensures large savings of metal, particularly alloy steel and special steel with a high content of chromium, wolfram, nickel, molybdenum. At the Braşov Truck Enterprise, for instance, about 85 tons of parts, especially cog wheels, pistons and racks are irradiated annually. At the Iol car enterprise in the same city, at the Pileşt car enterprise, at the Unirea works in Cluj-Napoca and many other economic units, the application of this method brings in annual savings worth millions of lei. The laser irradiation technology is being generalized in all specialized enterprises in this country. The serial manufacture of irradiation installations has started at the nuclear equipment enterprise. Similar installations have recently started to be produced also by other enterprises. Metalotecnica in Timişoara has the prototypes and small series production of the Institute of Radiophysics for Hot Sources in Bucharest, etc.

cuttings allows the cutting of steel sheets of up to 4-5 mm. Other installations are Solar P₂, designed for cutting silicon plates in the electrotechnical industry. Needlin 15 and Herou-las 25. Presently we have devised a powerful CO₂ laser functioning in pulsating regime, with a high frequency of repetition of pulses, combining thus the advantages of lasers with a pulsed regime with those of lasers operating in a continuous regime, being able

to supply peak-powers of scores of Megawatts and mean powers of 500 MW. On a world plane, such lasers have been conceived only in the USSR and in the USA. At the same time numerous laser installations have been applied to medicine. Our programmes for the ongoing five-year plan period and until the year 2000 cover ambitious projects. Thus, in the field of CO₂ lasers the programmes stipulate the achievement of increased powers and of impulse



energies 10 times bigger than the present ones. In the field of adjustable continuous lasers with an active solid and liquid material, a considerable will be obtained throughout the visible-light domain in infrared and ultraviolet, brought closer by non-linear effects: parametric phenomena, and generation of active materials with a wide frequency band. Lasers in "white light" will also be obtained with multiple discrete lines of emission in visible light. For the expansion of the laser equipment field new types of improved and specialized la-

zers will be approached allowing for applications already in use on a world plane, such as dynamic lithography and holography for microelectronics. Lasers with applications will be developed for communications and computer technology. Approached and developed will be lasers with position in the short impulse (nanosecond and picosecond) by developing lasers with solid and dye-stuff. Lasers with metallic vapours seem to present a wide range of applications.

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ON THE SCALE OF ISOTOPES

The Institute of Molecular and Isotope Technology in Cluj-Napoca is specializing in research on the separation of stable isotopes and the building of instruments adequate to measuring stable isotopes. The Cluj institute makes spectrometers for the analysis of deuterium, table

spectrometers with thermic ionization and gas chromatographs. At the same time, the institute produces and delivers stable isotopes for export and is involved in the national power programme by designing, developing and making complex equipment for nuclear plants.

PEOPLE OF THE HEIGHTS

Sometimes we are amazed at the architectural figure of a high rise. Let us say, a ten-storied block. Who would we do if we were facing a 100-storied block? It would be about 250 or 280 m high. This is the height of several towers, industrial chimney stacks built during the last years by a team, unique in Romania. Its specialists, first-rate professionals, work within the

is raised. But the Romanian builders of industrial stacks have also signed the building of several towers erected under various climatic conditions in countries like Egypt, Iran, Syria and Pakistan, where the Romanian specialists built several cement factories, in West Germany and Czechoslovakia. They are now preparing to erect a 120 m high tower in Turkmenia.



Enterprises of Industrial chimney stacks, ships and pre-compression, having its seat in Bucharest. Among the numerous buildings of this kind are those at the Glass Factory in Bucharest, at the Petrochemical Works in Ploieşti, those in Tulcea, Iaşi, Slatina, Arad, Zalău etc. There is no larger town in Romania where this team has not built something. There are 30 such stacks for various purposes on the whole.

But within the above-mentioned units, many new pouring and drumming technologies have been assimilated, some of them being thought out by engineers working in this collective. They have had positive effects in increasing the rate of execution of these towers and stacks and, of course, in increasing labour productivity. One of them has recently been applied to the building of such an objective in Turin, Severin. It is a matter of applying a slitting solution to the skeleton which, together with the building methods, has allowed of a reduction of the mounting and working time from 235 days to only 130 days. It is spectacular. Under these conditions, both the quality of the finishing and of the building

PROGRAMME

Daniel Băran, a physician from the town hospital in Dorca (Marasmeu county), an enthusiast for computer technology, and the experts from the Institute of Scientific Research and Technological Engineering for Computer Technology and Informatics in Bucharest have undertaken to make computers help in the health-care struggle. Thus, the Medat hardware-software was born. It is designed for the computer handling of the medical data of out- and inpatients. Thanks to Medat, observation cards including all data related to the patient during his hospitalization, clinical observations, summaries of the operations performed can be obtained automatically. Built for a 300-bed hospital, the new hardware-software is to be improved by specialists from the above mentioned institute.



MEDICAL INDUSTRY

Electrotechnica Enterprise in Bucharest included in its classified list a range of medical instruments. Their production by lines in the Medat apparatus for dia-

gnosis and the new magnetodiagnosis apparatus for treatments in low-pressure magnetic fields.

UNDERWATER EQUIPMENT

While biologists of the Romanian Institute of Marine Research in Constanta try to penetrate even deeper the life and physiology of fish, engineers led by Dumitru Dinu make efforts to supply researchers who frequently change out of their laboratory overalls into frogman's costumes with increasingly better diving technologies, underwater equipment, apparatus for oceanographic investigations, tools for the mechanization of fishing operations. They have designed a series of original equipment. Successfully tested were the first underwater TV cameras comprising components of Romanian industry and lighting apparatus for low depths. Conceived was an installation of welding and cutting underwater as part of which oxygen is injected through the electrode under pressure. Diving boards are now fitted with sketches representing a remote-controlled underwater vehicle provided with TV cameras and sensors supplying information about the salinity, temperature and depth of water. Everything bears the mark of the specialists working here. Prepared now is an equipment fishing under spot-lights and raising fish by means of an air-lift system.



SUPPLE "ANATOMY"

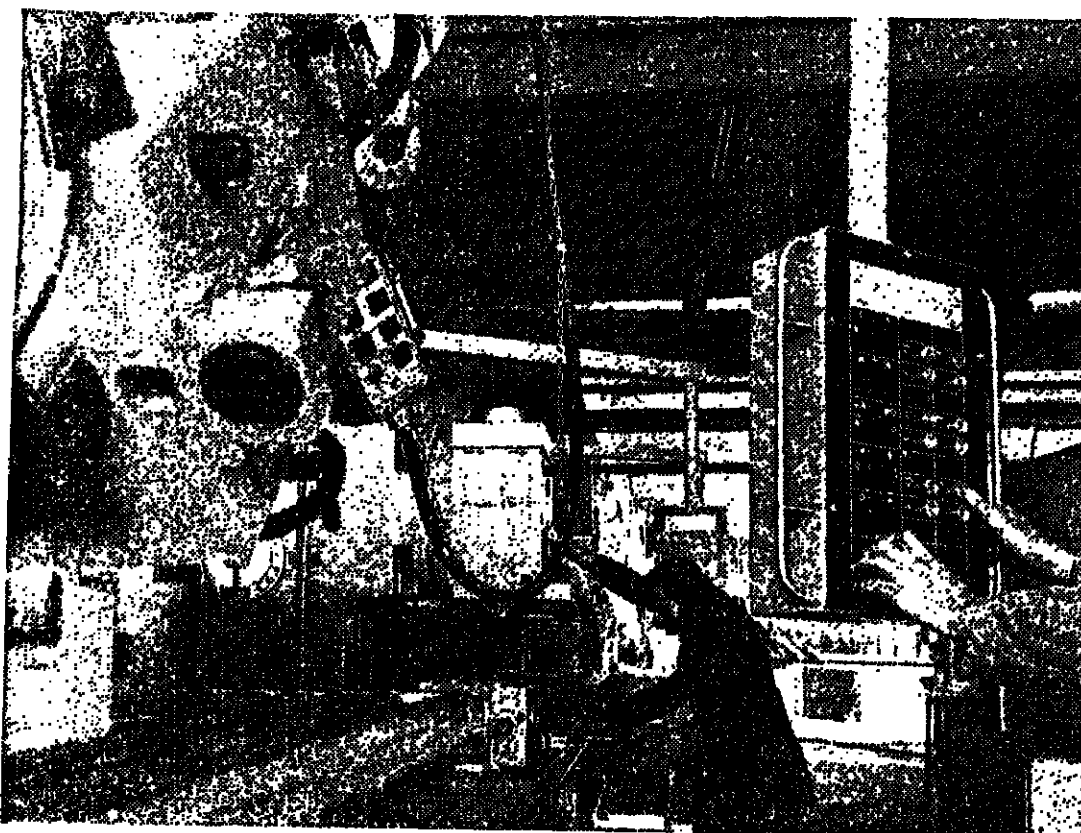
The specialists of the Electrocontract enterprise in Botoşani have enriched the list of products designed and built by the unit. Starting from their own researches they designed and built an original electrostatic copying machine with plates. It is less sophisticated because it can copy on any support, not necessarily on a special kind of paper. It costs little, has a simple "anatomy" and can be easily mended. Although the first type was productive, too, the authors wanted the new machine to be more robust and consequently the sketches and calculations gave birth to the second generation characterized by a better reliability.

RECOVERY TECHNOLOGY

The collaboration between the specialists of the Politehnica Institute in Cluj-Napoca and the Mining Works for Non-metal Substances in the same town has led to the finalization of industrially applicable technologies of reconditioning various parts for excavators, bulldozers, lorries, motor-compressors and conveyors. So far over 150 parts have been included in the list of reconditioned technical parameters. Used for their recovery are the technology of powder metal engineering, build-up welding, ionolite irradiation, etc. In 1987 alone imported parts worth 21 million lei were saved up.

New technical creations have been finalized by the Electrocontract Apparatus Enterprise in Timişoara. Of them, we should mention Reduc — a device for charging accumulators. The apparatus is the size of a desk telephone, boasts a modern design and looks like a display. The device has numerous advantages including that of acoustically and optically signalling errors which appear in the process of charging batteries. It is an installation meant for starting motor vehicles in low temperature environments. This robot can be used for charging all types of accumulators and for starting such vehicles as tractors and trucks. Finally, Motor Tester is an apparatus helping less experienced drivers.

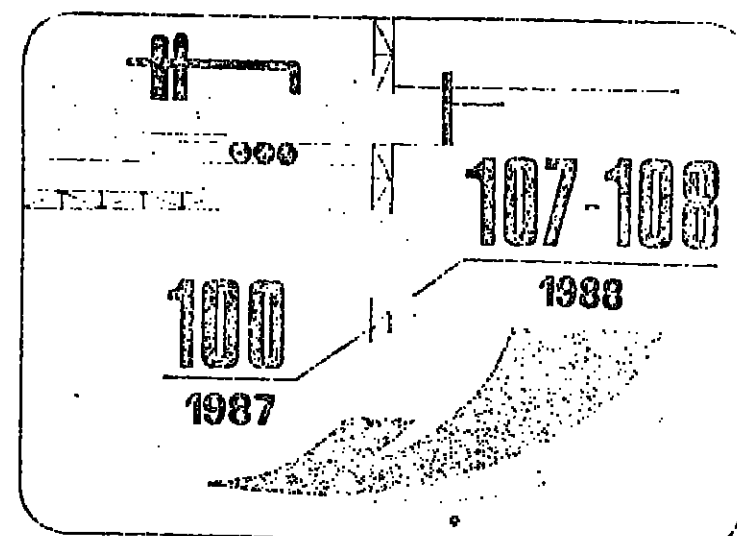
THE SINGLE NATIONAL PLAN OF ROMANIA'S SOCIOECONOMIC DEVELOPMENT IN 1988



THE SIGNIFICANCE OF SOME PLAN INDICATORS

As we informed you in our last issue, at the end of last year the Grand National Assembly (Parliament) unanimously passed the Law on the Single National Plan of Romania's Socioeconomic Development for 1988. The participants in the debates highlighted President Nicolae Ceausescu's decisive role in working out and laying on scientific bases, in keeping with a unitary outlook, the lines of the country's socioeconomic development in 1988, in thinking out and applying the programmes of stressing the qualitative, intensive sides of production, improving the organization and modernization of production, perfecting economic-financial activity, increasing the efficiency of the entire social work.

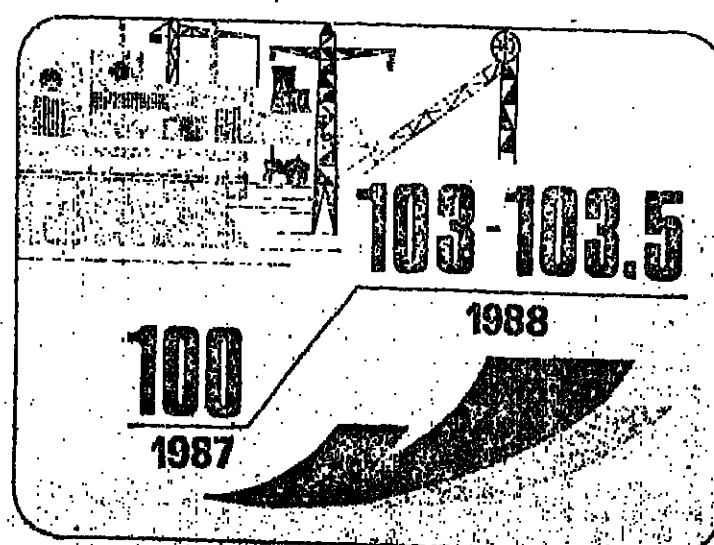
The whole content of the plan reflects the orientation towards emphasizing the qualitative sides of economic growth, the course towards an intensive-type reproduction, the substantial increase of efficiency in all activity sectors. Noteworthy in this respect is the much higher growth rate of the national income - 9.0-10.0 per cent - compared to that of the social product, which will be 6.0-6.5 per cent. Such an increase in the national income will secure both the funds necessary for overall development and those earmarked for passing on to raising remuneration by some 10 per cent, while further promoting a firm policy of price and tariff stability.



DYNAMICS OF THE INDUSTRIAL MARKETABLE PRODUCTION



New achievements of Romanian industry. Work is under way at the Bucharest Machine-Tool and Unit Enterprise on a series of programme-controlled lathes (top left). A new cotton knitting factory has recently gone on stream at Panciu (middle). Construction operations on a new section of the underground continue in Bucharest. Working apart from the zone between the future stations Bukur Obor and Stefan cel Mare (right).



FULFILMENT OF THE INVESTMENT PROGRAMME

INDUSTRIAL RATES

In 1988 industry will continue to represent the fundamental component of the policy of economic development in Romania. According to the plan, this year the value of goods production will increase by 7.0-8.0 per cent as compared to last year, and that of net production by 11.0-12.0 per cent.

The plan lays special stress on expanding the base of raw materials, improving manufacturing structures by giving priority to the growth of high-tech branches.

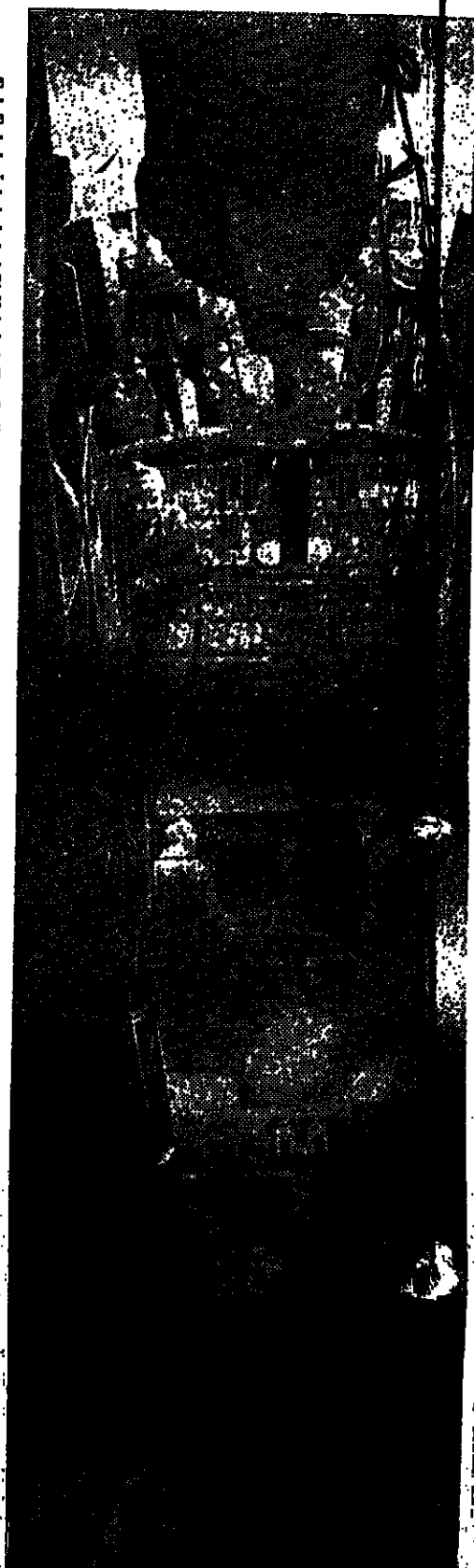
Special tasks are assigned concerning the growth of the production of the extractive and power industry, especially with oil, pitcoal, lignite, non-ferrous ores and coal-based electric energy. For metallurgy and machine engineering the plan stipulates the increment of the share of highly processed products, the intensification of the process of redesigning and upgrading, the replacement of alloy and high-alloy steels, the improvement of performance and reliability of products. Chemistry and petrochemistry will ensure the fulfilment of high indicators of turning to good account raw and subsidiary materials, continuing to expand the field of fine synthesis and small-tonnage chemistry. In the field of wood processing, construction materials and light industry, stress is laid on diversifying the range of products, curtailing specific consumptions, turning out new products with lighter weights and typified sizes.

Through its provisions, the plan ensures the increase of labour productivity in the republic's industry by 5-6 per cent, of the degree of capitalization of raw and subsidiary materials, fuels and energy, including renewable and reusable sources coverable and reusable sources.

According to the plan, the activity of scientific research, technological development and introduction of technical progress will substantially contribute to implementing the programmes of intensive development, of improving organization and modernizing production processes, to better exploiting raw materials, uplifting the technical and qualitative level of production and reducing material and energy inputs. For attaining these objectives, the plan stipulates among others the improvement of the existing raw-material processing technologies and the devising of new updated ones, the acquisition of new, better materials, machines and equipment, the improvement of the typification, standardization and norm-setting activities. Finally, as is but natural, fundamental research will organically intertwine, from now on too, with the application one while the link between research, education and production will continue to be strengthened.

In 1988 the total volume of investments in the economy will top 85 billion lei. Investments will be primarily earmarked for implementing the updating and re-equipping programmes; also stipulated is a substantial cut in the share of construction works in the overall investments.

Thus, as far as industry is concerned, as in fact all branches of the national economy, the plan lays down the projects to be achieved while also providing the requisite financial, material and human means.



The Bucharest Heavy Machine Enterprise is manufacturing a unit for the power industry (top). Aspects from a laboratory of the Fundulea Cement and Technical Clay Research Institute and from a plot where new wheat and barley strains and hybrids are successfully experimented (middle and bottom right).

SELF-MANAGEMENT

Aware of the fact that we cannot consume more than we produce, we intend to further increase the volume of farm food goods and of industrial consumer goods. This principle is also observed by the programme of self-management and self-supply for the assurance of the better supplying of the population in 1988, a programme that the country's parliament debated and voted. Stimulating the efforts for raising the outputs, of turning to good account all the resources we benefit by, are primarily viewed at.

According to the provisions of the Programme, even as compared to last year, a significant

A BALANCED BUDGET

Romania's 1988 state budget, adopted by the Grand National Assembly, comprises the state's centralized incomes and their earmarking, in keeping with the targets of the Single National Plan. Expenditure for financing the national economy was set at 175,154.3 million lei, which accounts for some 41 per cent of total budgetary spending. Planned socio-cultural spending totals 99,850.3 million lei, that is, almost three times more than the total allocated for the country's defence, which stands at 33,333.7 million lei.

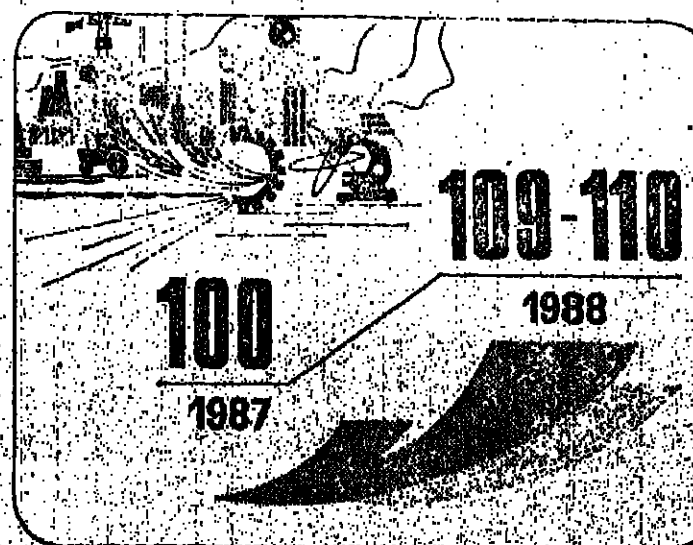
Beyond the multitude of figures laid down in the document to which we are referring, it should be stressed that this year too Romania's budget will be perfectly balanced, both targeted by income and by expenditure, amounting to 433,083.7 million lei.

growth is ensured in the deliveries of meat, meat products and cooked food, of fish, milk and milk products, vegetables, potatoes, fruits, etc. For instance, an average meat consumption of 70 kg per capita and 15 kg of fish per capita is provided for.

The figures of the plan are of course, scientific, being grounded, being correlated to the actual consumption needs. They can go up in the sense of an increase of consumption at a pace with the outpacing of the planned outputs.

On the other hand, to the amounts of farm-food products distributed by the central state fund are added those produced in the private households, where there are high numbers of fowls, pigs, cattle, sheep, etc.

As compared to last year, there will also be a growth in the industrial consumer goods, long-run ones, household appliances, etc., included, whose range will be diversified and whose technical-operational parameters will be raised.



INCREASE OF THE NATIONAL INCOME

AGRICULTURE

When in 1984 Romania obtained for the first time in its history a cereal harvest larger than 20 million tons, the production of a ton of cereals for every citizen was considered a great agricultural performance.

But, in the ensuing years - 1985, 1986 and 1987 - visibly larger productions were planned and harvested. Thus, in the last two years, in hardly favourable weather conditions, the cereal production has topped 30 million tons. Large crops have also been registered with fodder, technical plants, vegetables, fruit and grapes. At the same time the quantities of livestock products achieved in the field of animal breeding have increased.

Crops of eight or nine thousand kg of wheat or more than 20 t of maize per ha which five years ago were considered to touch the highest possible ceiling were reaped in the falls of 1986 and 1987 not from experimental plots but from acres of thousand hectares. For such average productions obtained throughout the cultivated areas, hundreds of farms received the high order of "Hero of the New Agrarian Revolution". The presence of such standard units in all counties proves again the great possibilities of today's Romanian agriculture.

Naturally, it would be an illusion to adopt as plan provisions the figures calculated on the basis of these record outputs. However, their existence substantiates the provisions of the Law of the Plan of Development of Agriculture, Food Industry and Water Management for 1988.

The main indicators show first of all the consistency of the high growth rates of this branch.

The overall farm output will increase this year by 5.5 per cent as against that of last year, the net production by 6-6.5 per cent, while the industrial goods production by 7.5-9 per cent, continuing that Romania continues to promote a highly dynamic agrarian policy.

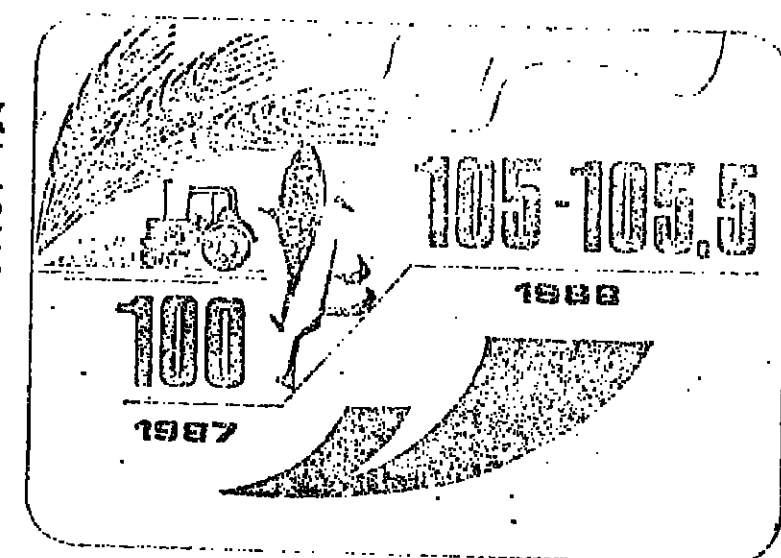
The law not only ascribes plan figures but also substantiates them by indicating realistic solutions for the growth of farm outputs.

This year, too, stress is laid on the complete and intensive usage of the land stock, on the recovery and reversion of those areas which in the past were unnecessarily affected for constructions and other non-farming purposes.

This year too stress is laid on the intensive use of the land stock, on the recovery and reclamation of those areas which in the past were unjustifiably used for buildings and other non-farming purposes.

The law further calls for the introduction and expansion of the most productive varieties and hybrids, the use of seeds from superior biological categories, the strict observance of production technologies. Animal breeding has in view the improvement of reproduction, breeds mellioration, the growth of production in all farms where animals and poultry are raised.

Under the law scientific research is to contribute to the intensive development of Romanian agriculture, scientific institutes and stations are required to work out new technologies for restoring and enhancing the fertility of soils, especially of those eroded, sandy and salt-saturated, to create new high-yield strains of plants, more resistant to low temperature, drought and other unfavourable environment conditions, to improve genetically the animal breeds, to fully capitalize on the existing fodder base, natural pastures and hayfields included. Finally, emphasis is placed on the technologies implying a low consumption of chemical substances with a view to reducing the polluting effects and conserving the qualities of the environment.



GROWTH OF THE GLOBAL FARM OUTPUT



THE QUALITY OF LIFE

The fundamental purpose of the whole Romanian policy is the permanent raising of the material and cultural living standard of the people.

As we have already said, this year will see the beginning of the action of increasing the remunerations by 10 per cent. All the economic units, the central and local bodies are to take measures for the firm application of remuneration principles and distribution of the incomes of working people, in order to correlate incomes to the work performed, to apply the overall and direct incentives.

A large spectrum of measures devoted to raising the quality of life is included in the Programme regarding self-management and self-supply on territorial level.

The plan also provides for measures on the continuous improvement of health and social care, with a stress on preventing diseases. As a conclusion, let us mention - without going through all the provisions of the plan in this domain - that this year, 150,000 apartments will be commissioned, out of which 25 thousand in the country side.

THE BLUE-EYED FAMILY

In the spring of 1979 a young couple, gripped by the breathless intensity of their emotions, uttered an outright and solemn I do at the ceremony held in the Wedding House. Therefore, a new family was set up: Alexandru and Constanta Nastase. The moment — always unique for the newly-weds but quite ordinary in the eyes of witnesses — seemed to have no significant consequence for the young couple either...

THE CONTINUER OF A NAME

Alexandru Nastase, a graduate from the Electronics High School worked (and is still working, now boasting 17 years

with. On February 18, 1986, they had their first child — Răzvan Alexandru, a beautiful and robust new-born baby who was to carry on the name of Nastase. From the earliest weeks, the boy had become "the most intelligent, agile baby with the bluest eyes in the world. Hardly had he reached the age of



WHOM DOES IONUȚ TAKE AFTER?

The girl grew fast, the boy too, having an ascendancy of two years over his sister. It was time for Răzvan Alexandru to attend the district kindergarten no. 99. Ana Maria followed suit. 1983, 1984 and 1985 passed in an atmosphere of harmonious

other baby boy, Mihai-Ionuț added his identity to the name of Nastase: Mihai-Ionuț was born. The increasingly more distinct features betrayed a close resemblance with his father (in this family, contrary to frequent cases, boys take after their father, while the girls reproduce visibly their mother's image). Ionuț was an exception to the physiognomy characteristic of his family due to a single detail: he had black eyes.

23,000,000

In the evening of December 3, 1987, in an apartment at 4 Agieș Alley in Bucharest, everyone was in an unusual state of agitation. The elder children (one of eight, the other of five years and a half) were sent to bed, while Ionuț was entrusted to his grandmother.

When the clock struck 0.01, marking the day of December 3, 1987, the whole hall of the Municipal Hospital reverberated — surprisingly early even for the experienced medical staff — with the triumphant shriek of a baby announcing his entrance into the world.

In the morning of the same day, Dr. Radu Bănescu visited the young mother, congratulating her with an exuberance which he felt to be normal for the occasion: "You have a famous girl!" The girl's name was Elena-Ioana. It was established beforehand by her father who was sure it was going to be a daughter in order to make up the second pair.

At the enterprise of radio parts and semiconductors Alexandru Nastase was welcomed by his colleagues with cheers which he thought were only normal, though they seemed to exceed the frame of usual congratulations offered upon the birth of a new child. He had not learned yet the thrilling piece of news: the National Commission of Demography had already announced early in the morning of December 3 that a baby called Elena Ioana Nastase rounded off the number of Romania's inhabitants, now amounting to 23 millions. Cablegrams had been sent throughout the country spreading the date of the event: Romanian broadcasting stations and dailies announced the victorious piece of news with justified haste. Soon, TV reporters and photographers managed to break all medical rules, filling every news stand with images of the mother and the baby girl who had become overnight Miss Romania of 1987.

The birth of Elena Ioana Nastase was an ordinary event for all the Romanian days and nights. But the piece of news became famous, enjoying the affective support of a whole nation, because the girl number 23,000,000 has a deep significance for the continuously growing human dowry of the country.

Now Elena Ioana Nastase has joined her elder brothers and sister. She grows by 200 grams a week! She smiles in her sleep and her smile can be read in her blue eyes when she wakes up. The joy of a whole country, her birth was a great event for the Nastase family.

VIORICA CIOREAGIU

OPENHEARTED

The inorganic chemistry lab of the specialist faculty at East University is never empty. There you can certainly find Magda Petrovanu with the students but also alone, following a complicated research theme with practical implications.

Professor doctor Magda Petrovanu is a member of the French chemical society, of the

Balkan Medical Academy and of other international scientific organizations. Last year she held specialized conferences in West Germany and France, she participated in prestigious international chemistry congresses. Her lectures were praised by personalities in the field.

"I have the greatest satisfactions when my students appreciate my lectures", told the distinguished professor. In fact, what I presented them over the years lies at the base of the first printed course of the History of World and Romanian Chemistry.

Last spring prof. dr. Magda Petrovanu participated in the National Colloquium of Student Scientific Circles and was elected. Beyond the papers, high scientific level, their original opinions, her students proved that they had adopted an idea dear to their professor: she should have a broad scientific horizon, but also a philosophical and cultural one. They must be multifaceted. Only passion for beauty, truth can lead to generally human values.

Such an ideal, for which she has unhesitatingly pleaded during her entire brilliant activity, seems to have become a member of the Romanian National Committee "Scientific and Economic" because (she believes) "a person can be more than just a scientist."

CONSTANTIN LUTU



of uninterrupted service) at the enterprise of radio parts and semiconductors in Bucharest. He and his wife had been colleagues at the same enterprise, until...

Alexandru was the only child of a widow (he could hardly remember his father who had died of an untimely death). In his childhood, and in all the years before his marriage Alexandru had always wished to have at least a brother or a sister. For her part, Constanta had three brothers and two sisters (while her grandparents had had no less than 11 offspring).

Therefore, it is easy to presume that the new family of Nastase aspired after fulfilling its duty: apparently different, the two sons — 16 and 17 years

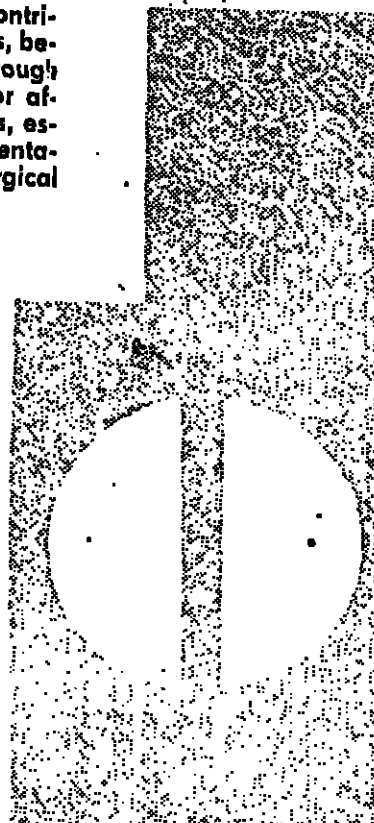
one year when his parents began to feel sorry for having only one child.

THE YOUNGEST CHILD A BABY GIRL

The regret persisted, overtly declared or not, somehow overshadowing the joy of the youngest family: to have a son who feasted, staggered about, and then walked firmly through the house. But on September 18, 1986, fate smiled: a little girl, the hope of the same family, the work of the youngest child, came into the world. Ana Maria Nastase, a charming doll, and smiling doll, the youngest child, rounded off the family as much desired by Alexandru and Constanta.

NEW AND EFFICIENT ROMANIAN DRUGS GASTROZEPIN-PANZCEBIL

The new therapeutic product called PANZCEBIL favours the digestion of proteins, carbohydrates and lipides through its contribution of pancreatic enzymes, hemicellulose and biliary salts, being quite efficacious in the treatment of digestive affections through enzymatic and biliary deficiency. PANZCEBIL is recommended for affections caused by the secretory deficiency of the digestive glands, especially of the pancreas (chronic pancreatitis, dyspepsia of fermentation and putrefaction, meteorism), post-surgery treatment in surgical interventions on the intestine and biliary ducts.



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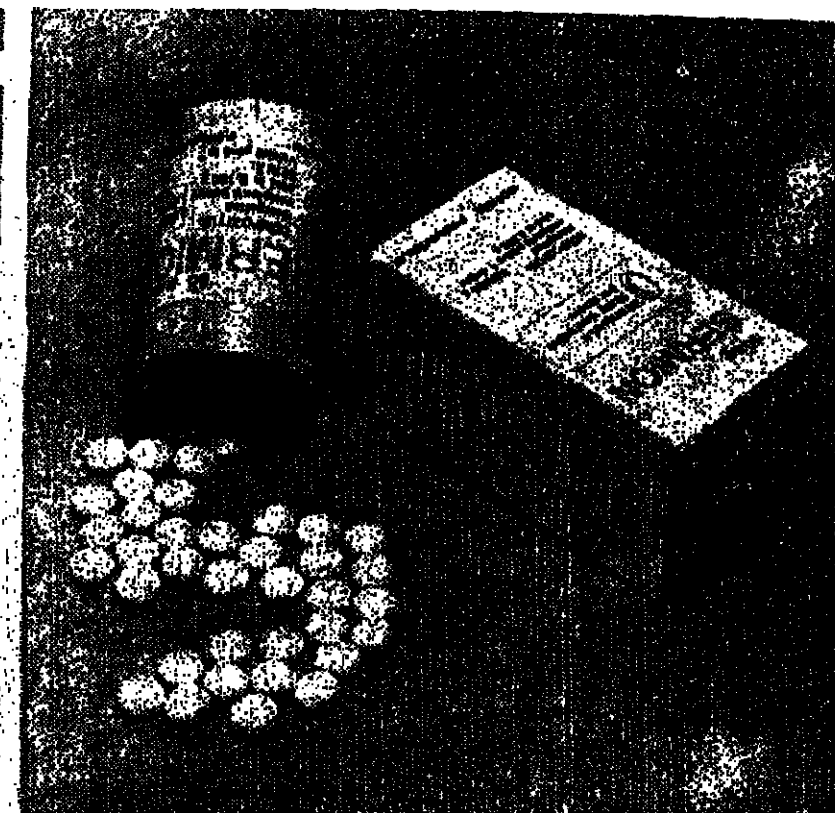
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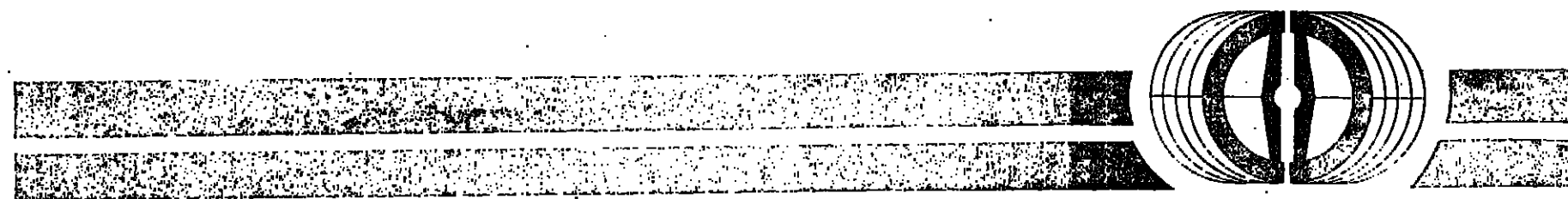
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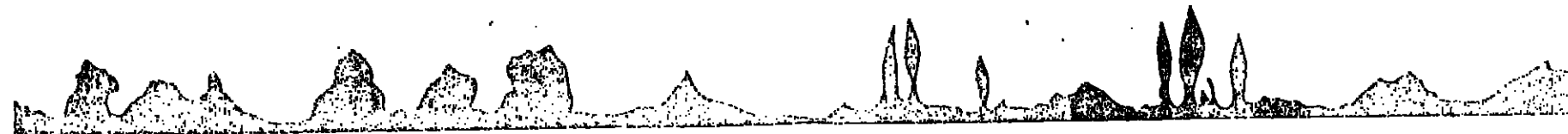
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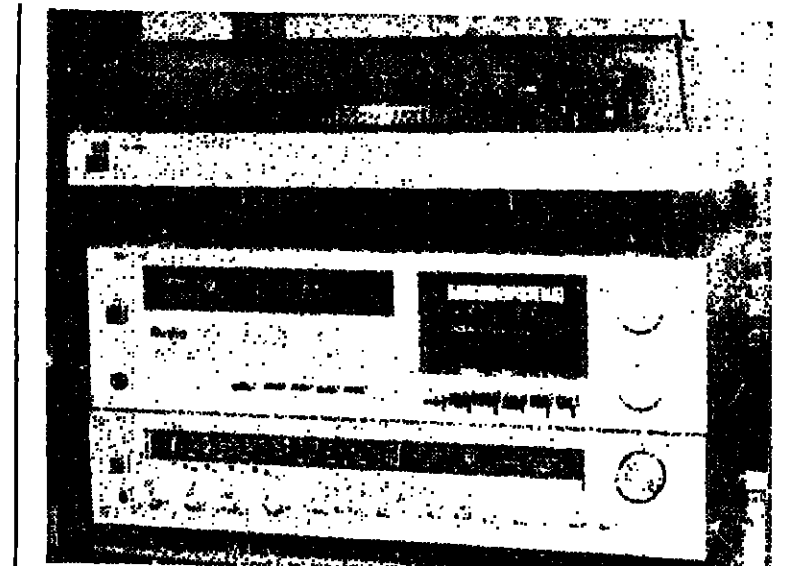
w, which can be reduced to 750 w by means of a switch.
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or amplifier of the monophonic or stereophonic audio programmes.

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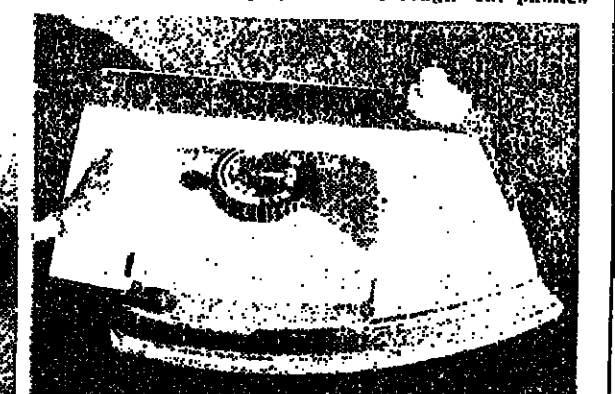
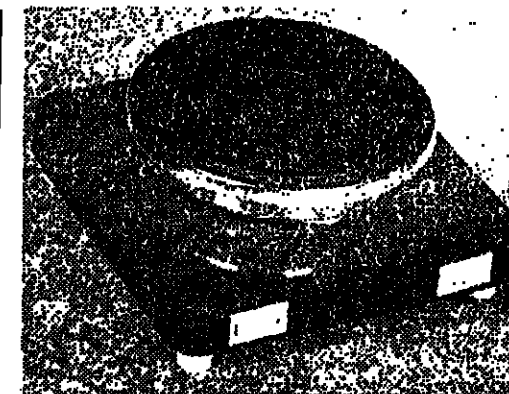
● PAPER PLAIN COPIER MCM-1 M. It has a single copying capacity of 250 copies per hour and a multiple copying capacity of 120 copies per hour.

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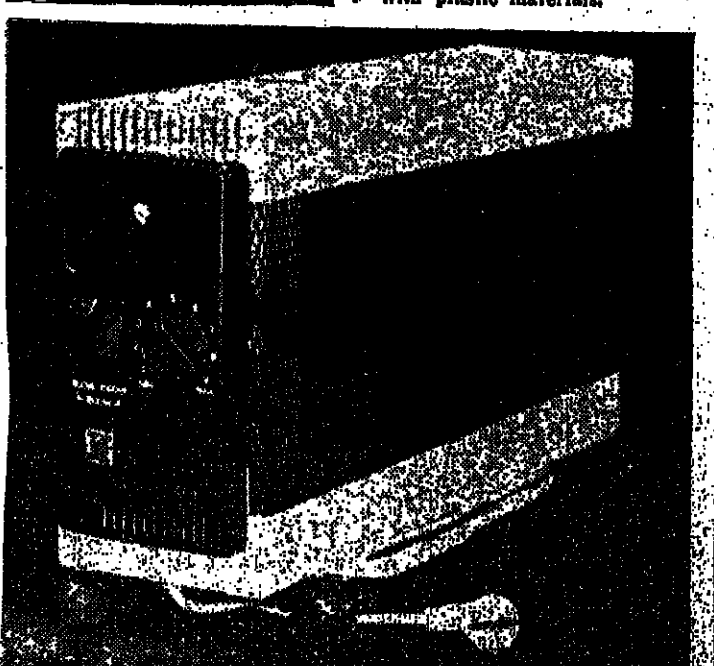
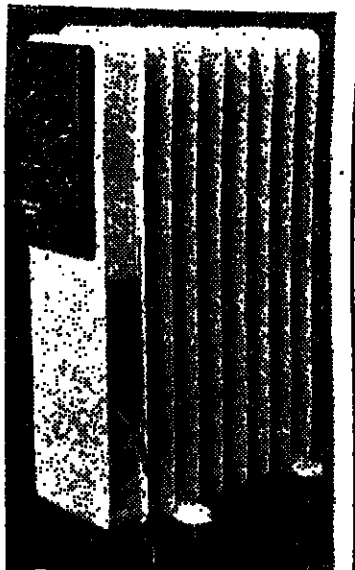
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mention the highly efficient manufacturing lines, the fully automated and robotized procedures, the latest equipment with state-of-the-art apparatus, the special equipment and simulators of manufacturing processes for testing finished products in limit conditions. The enterprise delivers its products to over 35 countries of which we mention Bulgaria, Czechoslovakia, Cuba, Cyprus, West Germany, Ghana, Great Britain, Hungary, Iraq, Israel, Italy, Jordan, Kuwait, Morocco, the Netherlands, Poland, the Soviet Union, Switzerland, Turkey, the United States, Zaire, etc.

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